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楽友
Raku-Yu

Kyoto
University
Newsletter



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Lake Biwa Aqueduct – Sharing an Interwoven Bond of Birth and Rebirth

Illustrated Books: "Eboshiori Soshi"

Paper with illustrations in color, manuscript, 2 volumes, author and publisher unknown, 34.1 x 25.2 cm

With the Hollywood film *The Last Samurai* produced in 2003, the "samurai" warrior class that lived in Japan in ages past and the spirit and philosophy that supported them have suddenly become a focus of attention around the world. The period of Japanese history in which the samurai formed the ruling class stretches over a period of 650 years until the middle of the 19th century. "Eboshiori Soshi" that appears on the cover of this issue tells the story of an episode in at the end of the 12th century when it was the power of the warrior class rather than the nobles that predominated and a struggle for ascendancy ensued between two powerful forces of the warrior class, the Genji clan and the Heike clan. In 1159, the Heike clan defeated the Genjis, and their power and glory waxed high to the extent that they would say, "if you are not of the Heike clan, you are nobody". The scene appearing in the picture shows images of a soldier of the Heike clan searching for Ushiwaka, a noble son of the Genji household who has concealed himself. He became Minamoto Yoshitsune, popular historical figure in Japan who is known to have been an excellent battle commander, and performed his gallant deeds and bought the Heike clan to ruin in 1185.

The dramatic turns of fortune that occurred between the Heike clan and the Genji clan continue to be a favorite story among Japanese people and have provided motifs for a broad range of artistic works. The appearance of the soldiers of the Heike clan drawn in this illustration overflows with a sense of vigor and rough hue of the characters involved. The scene conveys the power that existed at the opening of the Samurai Era, vividly depicting the rough and primitive origins of the samurai.



Sympathy for the Victims of the Sumatra Earthquake and Devastating Tsunamis

The great earthquake with magnitude of 9.0 occurred off the west coast of northern Sumatra on December 26, 2004. The tsunamis generated by this earthquake killed more than 300,000 people and injured more than 5 million in Indonesia, Sri Lanka, India, Thailand, and other areas of Southeast Asia, South Asia, and Africa. The victims include thousands of people who were visiting the region when the earthquake happened, including Japanese as well as Europeans and North and South Americans.

Being a seismologist as well as a vice-president of international affairs, I am deeply concerned with such natural disasters. There are many lessons and warnings to be learned from them. We need to develop scientific studies and education to reduce such disasters. Furthermore, we need to take the initiative and help public opinion realize the importance of monitoring geohazards and issuing alerts and warnings.

Kyoto University has a good record of education and research accomplishment in the field of disaster sciences. This is the time to contribute our knowledge to disaster reduction both worldwide and on the national scale. The members of the Board of Kyoto University convey their most sincere condolences to families, communities, and governments of the more than 300,000 people that lost their lives in this catastrophic earthquake.

Kojiro Irikura, Vice-President of Kyoto University

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A Note on Order of Names

As a general rule, names appearing in *Raku-Yu* are written in given name/family name order.



This name was taken from the assembly hall called "Raku-Yu Kaikan" that commemorated the 25th anniversary of the founding of Kyoto University.

Kojiro Irikura Born in Qingdao, China in 1940, Dr. Irikura graduated from Kyoto University Faculty of Science in 1963. He earned his master's degree in 1966, and his D.Sci. in 1983 while at Kyoto University. He was a research associate at the Disaster Prevention Research Institute from 1963 and became an associate professor in 1973. From 1988, he was a professor at the institute, until he retired and became a professor emeritus in Apr. 2004. In December 2003, he was appointed Vice-President of Kyoto University, and Director of Facilities, Research and International Affairs in April 2004.

Having shared seismology as their common field of research since their student days, President Oike and Dr. Irikura are now both engaged in the joint task of managing Kyoto University. Dr. Irikura lights up when the talk turns to research. His specialty of strong motion seismology is closely linked to the earthquake resistance of buildings and urban infrastructure. Accordingly, the research environment surrounding this field has advanced significantly in recent years in Japan. In November last year, Dr. Irikura launched the Kojiro Irikura Earthquake Motion Research Institute homepage at <http://www.kojiro-irikura.jp/>. In addition to performing his numerous and exacting duties as Vice-President, Dr. Irikura's work as a researcher committed to mitigating earthquake disasters and protecting the living environment of citizens, will continue for his lifetime.



Site-specific characteristics of Kyoto University campuses and remote facilities

As a vice president, I am in charge of improving university facilities and promoting research and international affairs. Kyoto University is dedicated to the creation of knowledge at the highest level of excellence in a wide range of academic fields from basic sciences to advanced technologies. To keep such levels of research and education, university facilities and buildings need to be maintained in the best condition and campus amenities need to be continuously improved. The quality of education and research is closely connected to the university environments.

The University was incorporated as part of the government's administrative reforms in April, 2004. Taking this opportunity, Kyoto University will reform its academic environment under the leadership of the president based on the "Excellent University" concept.

Kyoto University has three campuses, Yoshida, Uji, and Katsura, all of which are located in Kyoto basin and form a triangle. Each campus has unique characteristics influenced by its history and regional culture.

The main campus is located in Yoshida near the center of the ancient capital of Kyoto. It is the center of education and basic sciences. There are 10 undergraduate faculties and 15 graduate schools for nurturing excellent researchers and highly cultured people. There are also seven research institutes including basic sciences, life sciences, humanities, and social sciences. These consist of seats of traditional learning and state of the art laboratories.

The Uji campus is south of the main campus. There are four excellent research institutes for chemistry, energy, sustainable humanosphere, and disaster prevention. They promote sciences and technologies for preserving the environment, mitigating disasters, and developing sustainable societies.

The Katsura campus is west of the main campus. The graduate schools of engineering and informatics are in the process

of moving to this new campus from the main campus. The campus aims at merging technology and science disciplines to form a "Techno-science hill" creating an innovative culture.

Additionally, Kyoto University has 36 remote sites located all over Japan for promoting site-specific studies. This demonstrates one of the unique features of the University to place emphasis on field sciences. Those sites offer many opportunities for developing education as well as research based on fieldwork.

Furthermore, Kyoto University has set up overseas sites for developing field sciences more efficiently. Presently progressive activities are developing in the South East Asian base to promote area study, the Shanghai base to research present-day East Asian economics, the sites in the South East Asian region and the Silicon Valley to study Informatics and Energy Science, and the South East Asian observatories and field stations to observe global environment. We will establish a network of these overseas stations to function more efficiently as regional overseas bases for promoting not only joint research but also educations.

It is my job to support improvement of research facilities, upgrading of campus amenities, and development of the academic traditions of Kyoto University. The major issue we will be focusing on is the designing of a safe and secure campus making effective use of the land under the "Excellent University" concept. This measure will bring a breath of fresh air to the traditional learning of Kyoto University. We are also confident that "the contribution to harmonious coexistence in the global society", which is the academic calling of Kyoto University, will be achieved on a higher level.

Kojiro Irikura

Vice-President of Kyoto University

A handwritten signature in black ink, reading 'Kojiro Irikura'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Quest for Evolution of Human Sociality through Fieldwork on the Great Apes

Field studies on the African great apes have greatly reduced the anecdotal gap between apes and humans based on the findings of cultural behavior, self-medication, elaborated hunting, prudent alliance or intervention in agonistic interactions and extended sexual behavior in various social contexts. We have learned that most differences in the behavioral features of apes and us are not qualitative but quantitative.

When I was a student of Kyoto University in the 1970's, the Japanese primatologists discovered many behavioral features that are common to the great apes and humans. In the Laboratory of Physical Anthropology, I frequently experienced animated discussions on evolutionary trends from apes to humans, such as formation of human family, incest taboo or egalitarian sociality. I was strongly motivated to study human sociality by observing the great apes in the wild. The Japanese primatologists used anthropological methods to describe

animal behavior by habituating them and identifying each individual. The late professor Kinji Imanishi advocated a new field of animal sociology and proposed guidelines of field research on wild animals. He believed that, in order to clarify the relationships between animal behavior and their social systems, data on how they recognize each other and on how their social relationships change with time should be collected by long-term field observations. I started my field works on Japanese macaques on Yakushima Island and then on wild gorillas in tropical forests in Africa. By spending a long time with gorillas in the dense forests, I have found many interesting hints for considering human evolution.

My findings on the aging cycle of gorilla social structure suggest that the creation of the sociological father may have played an important role in establishment of the human family. Affiliative relationships between a father and a daughter may promote avoidance of sexual inter-

actions between them and may stimulate female dispersal from their natal groups. Other findings on social staring between gorillas suggest that their social interactions are not based on dominance hierarchies but rather on egalitarian sociality with frequent intervention in conflicts by a third party. The early hominids may have developed such social features as exogamy, an incest taboo or cooperation between different families by division of labor.

Recently, infanticides by extra-group males are argued as the major reproductive tactic aimed at stimulating females to resume reproductive cycling from the socioecological point of view. Frequent infanticides have been reported in a population of mountain gorillas, while no infanticide was observed in my study population of eastern lowland gorillas. I compared social structure and individual migrations between the two populations and found marked differences in the group composition and the patterns of female

transfer. Infanticides may promote female transfer into multi-male groups for seeking the stronger protection and association among kin-related males within a group. In contrast, the lack of infanticide may promote formation of one-male group and association among females at transfer. Such social flexibilities may characterize the population structure of gorillas. Similar consequences from violence by males probably influenced human sociality in the past.

My recent research is focused on sympatry of gorillas and chimpanzees. During the major part of human evolutionary history, our ancestors coexisted with other hominid genera or species. However, we



Gorillas form a cohesive group like a human family



Mountain gorillas usually form a multi-male group where a putative father and a matured son coexist.



Pole Pole Foundation invites school children to observe wild gorillas in their natural habitats.



A mother and her infant moved between groups without infanticide in Kahuzi-Biega National Park.

are living as a single species at present on the earth. How did our ancestors coexist with other hominids? Why and how did other hominids extinct? Sympatry of gorillas and chimpanzees may provide good suggestions to answer these questions. Earlier studies in the 1960's and 1970's suggested that distinct niche differentiation reduced competition between them. However, my research shows that there is actually extensive overlap in diet and ranging between them. It seems likely that they have developed different foraging strategies and sociality to mitigate feeding competition, while keeping similar preference to succulent ripe fruits. Our ancestors may also have developed unique foraging strategy and sociality under sympatric conditions with other hominids. Food sharing, co-feeding and division of labor may have been incorporated into the formation of human family. Continuing research on sympatric gorillas and chimpanzees will facilitate understanding the evolutionary history and ecological background on human sociality and mind in the near future.

The great apes have been driven to the point of extinction in most of their habitats, due to increased deforestation, bush-meat trade and epidemic diseases. In view of the urgent need to protect the great apes, I have engaged in various con-

servation activities. I have worked as a member of SAGA (Support for African/Asian Great Apes), a union of people who wish to promote conservation of the great apes in the wild and their welfare in captivity. We have organized a symposium once per year to discuss conservation measures and enrichment of captive environments. The seventh SAGA symposium was held at Kyoto University Clock Tower Centennial Hall and Kyoto City Zoo on November 12-13, 2004. More than 200 people attended the symposium and discussed environmental education and zoo education from various fields. I have also worked as a member of Pole Pole Foundation(POPOF), an NGO organized by people inhabiting the villages adjacent to the Kahuzi-Biega National Park, Democratic Republic of Congo, where gorillas and chimpanzees live sympatrically. A tree nursery, a handicraft center and a school for women and children were established for community-based conservation education. Such activities have played an important role in the spread of conservation knowledge and in the reduction of poaching. I hope our growing understanding of the great ape biology contributes to major improvement of their conservation status and to reconsideration of human beings as their closest neighbors on the planet.



Juichi Yamagiwa

- Born in 1952.
- Specialized Research Field: Primatology, Human Evolution Studies
- Graduate of the doctoral program, Graduate School of Science, Kyoto University
- D.Sc., Kyoto University
- Professor, Graduate School of Science, Kyoto University
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"I believe that conserving nature starts with creating bonds with each other. Gorillas, hunters and gatherers, and people from various countries including Japan should be egalitarian in expanding this bond with each other."

Since the 1950s, the Japanese concept that the animal kingdom is self-evidently connected to the human realm has fostered an approach to primate research unlike anything in North America or Europe. Professor Yamagiwa has pioneered Kyoto University's ongoing efforts to make this approach the mainstream approach to the field. Having devoted half his life to the study of gorillas, the Professor says that the motivation for his research is the emotion he experienced 26 years ago, when he was first accepted by the alpha male of a gorilla group.

Gorillas now find themselves in a very different environment from the way things were at that time, however. Civil war in the Congo and conflicts of interest over gorillas themselves have steadily encroached on their habitats, experiences that led to Professor Yamagiwa formulating his concept of conservation as forging ties. This concept has led not only to research, but also to such NPOs as SAGA and POPOF, which protect the great apes.

The human species finds it most difficult to coexist with other species of lives. At the same time, it possesses the rare ability to forge bonds with other living things as well. "Having been surrounded with gorillas for so long, I've come to like the shape of their bodies, with their long arms and short legs," laughs the Professor as he prepares to take another trip to Africa, hoping all the while that gorillas will once again welcome humans as they once welcomed him. The way he looked as he walked away, so calm and composed, was every bit as impressive and charming as that of any silverback gorilla.



Prof. Yamagiwa who presented a lecture for the general public as part of the SAGA symposium.



Exhibition booths of NPO organizations at SAGA7 Symposium. The theme of the exhibition was protection of apes.

Introduction to the 21st Century COE Program

"Establishment of COE on Sustainable Energy System"

Energy and Environment in the 21st Century

It is forecast that energy consumption will increase dramatically in the 21st century because of rapid increase in population and further improvement in our living standard. Energy production and use are closely linked to local and global environmental problems. It is obligatory upon us to further develop environmentally friendly energy systems so as to keep the earth environment beautiful for future generations.

21st Century COE Program

Emphatic support for forming a world-class educational and academic base was proposed by the Japanese Ministry of Education, Culture, Sports, Science and Technology as "The 21st Century COE (Center of Excellence) Program" and was put into practice from 2002 FY. In 2002 FY, 113 programs from 50 universities, including 11 programs from Kyoto University, were selected out of 464 applications from 163 universities.

To realize an environmentally friendly society and guarantee energy security, it is necessary to establish sustainable energy systems in the future. For this goal, the Graduate School of Energy Science, the Institute of Advanced Energy, and the Research Institute for Sustainable Humanosphere jointly proposed "Establishment of COE on Sustainable Energy Systems" for the 21COE program

in 2002 FY, and fortunately, our proposal was accepted. The research and educational budget allocated for the last three years was about 860 million yen, and this will be continued for another two years.

Outline of 21COE Program on "Sustainable Energy Systems"

1) Research Program

Our 21COE program includes the establishment of both a research center and an educational center on energy and environment as shown in Figure 1. The research program consists of four research tasks: (1) solar energy system, (2) hydrogen energy system, (3) bio-energy system, and (4) evaluation of these various energy systems so as to achieve sustainable society harmonized with the environment. The solar energy task group investigates various applications of solar energy, consisting of three subtasks: advanced solar cells, plasma technique for nuclear fusion energy, and solar power station (SPS). The hydrogen energy task group studies hydrogen production, transport/storage and utilization in areas such as high-performance hydrogen engine and fuel cell systems, while the bio-energy task group studies the production of bio-energy from waste biomass to substitute energy from fossil fuel. The basic method applied to the conversion of waste biomass to bio-fuel is based on supercritical fluid technology. The evaluation task group, on the other

hand, studies the evaluation methods of energy systems from various points of view such as energy efficiency, environmental impact, economics and social acceptability, etc. and application of the various energy systems. It is based on Life Cycle Assessment (LCA). The final goal of the 21 COE program on Sustainable Energy Systems is illustrated in Figure 2.

2) Educational Program

The new educational program will strengthen the development of students who can have a broad knowledge of both energy and environmental issues. Under such a new system, Ph.D. students not only learn technical aspects of energy science but also acquire the skills to solve problems under social constraints such as economic efficiency and social acceptability, etc. In addition, the students are trained to present and communicate fluently in English and to collaborate with colleagues, etc. so that they can play a leading role in various international communities in the future. We have published textbooks that facilitate systematic education of energy science. Furthermore, we are trying the systemization of curriculums, organizing the international school of energy science and providing a public advertisement-type research fund for doctoral students.

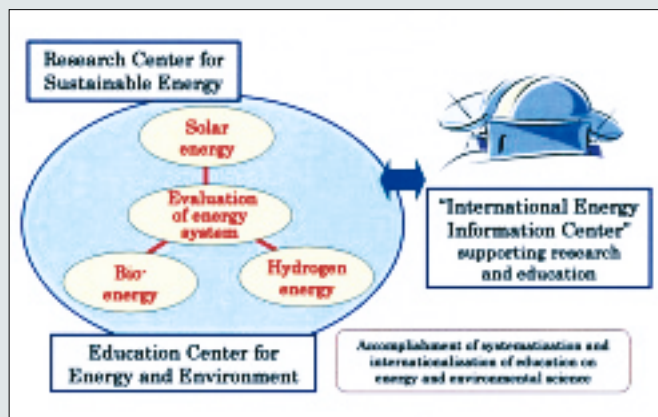


Figure 1
Outline of 21 COE program on "Sustainable Energy System"

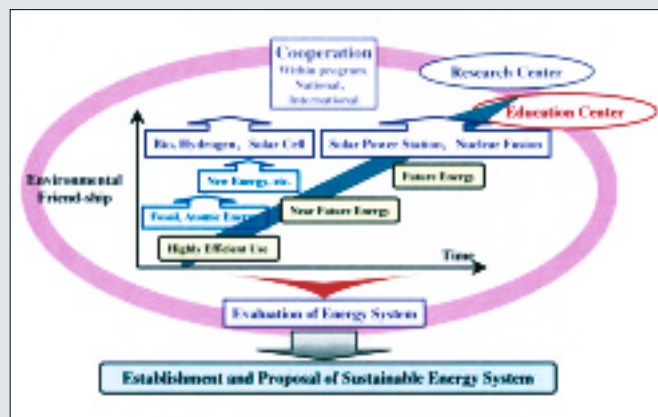


Figure 2
Final goal of 21 COE program on "Sustainable Energy System"

3) International Energy Information Center

To effectively promote and support those research and educational programs, the "International Energy Information Center" has been set up. It has a lot of roles such as surveying energy and environmental data, promoting research cooperation between industries-government-universities, holding the international and national symposiums, and establishing overseas offices, etc. Detailed information of 21COE program can be found on the homepage at http://energy.coe21.kyoto-u.ac.jp/e_index.html.

Noteworthy Research

Energy conversion of biomass using supercritical liquid

This research, led by Professor Shiro Saka, aims to generate energy by using supercritical liquid to instantaneously hydrolyze biomass.

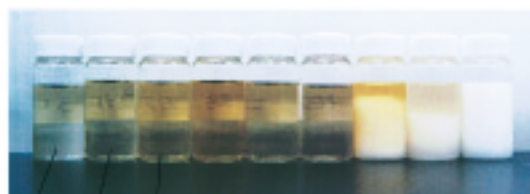


Fig.1 A variety of vegetable oils and animal fats



Fig.2 Products after supercritical methanol treatment

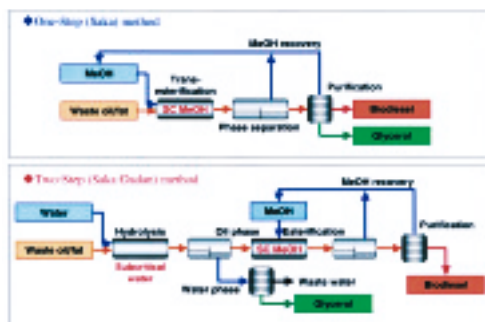


Fig.3 Biodiesel production processes with supercritical methanol

Fig.3: One-step method (called as Saka Process) is based on transesterification of oils/fats (triglycerides), whereas two-step method (called as Saka-Dadan Process) is on hydrolysis of oils/fats in subcritical water to fatty acids which are subsequently converted to biodiesel fuel through methyl esterification in supercritical methanol.

Fig.4: Although transesterification of oils/fats proceeds through one-phase reaction at high temperatures, it does heterogeneously at low temperature in supercritical methanol.

The Public Seminar

Formation of an energy saving-oriented society is first of all conditional on the awareness and cooperation of each and every citizen. In order to get as many people as possible involved with energy saving and environmental conservation by explaining energy and environment issues to citizens in simple terms, the 21COE Program also includes public seminars. Such seminars have already been staged in 35 out of the targeted 47 prefectures in Japan and have played an important part in deepening exchange with citizens.



Mikio Kasahara

- Born in 1942.
- Specialized Research Field: Atmospheric Environmental Engineering, Aerosol Science, Energy Science
- Graduate of the master's program, Graduate School of Engineering, Kyoto University
- D.Eng., Kyoto University
- Professor, Graduate School of Energy Science, Kyoto University
- URL <http://aerosol.energy.kyoto-u.ac.jp/>

"The question that we scientists must face is to decide which areas of research we should be delving in for the 21COE project. We get a lot of ideas and courage by talking to all the citizens who attend these public seminars."

Prof. Kasahara is nothing if not a busy man. He wears three important hats: project leader for 21st Century COE, Dean of the Graduate School of Energy Science and head of the Atmospheric Environmental Impacts of Aerosols in East Asia research project. And yet, he speaks of his time spent in such research and supervisions with a sense of joy and relaxation, as though it were nowhere near as arduous as it really is. This feeling of happiness most likely derives from the fact that all of the projects with which he is currently associated are ultimately aimed at achieving the same thing: offering environmentally friendly lifestyles, as opposed to merely developing technologies or explaining phenomena. Environmental friendliness, however, carries the implication of inconvenience to humans, a condition that the Professor believes can be significantly eased through developing new technologies, which in turn will find greater application the more basic research is done. The Kyoto Protocol took effect at last in February. It is the mission of Kyoto University, located within the city of Kyoto, the very site of the COP3, to cause people to think about environmental issues. And we consider our support of Prof. Kasahara in his myriad projects to be part and parcel of this social obligation that we bear.

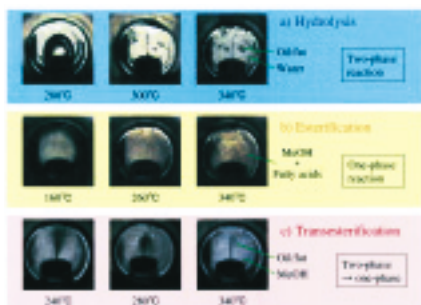


Fig.4 In-situ observations for the oil/fat reactions through a sapphire glass



Prof. Saka providing guidance during an experiment with supercritical liquid.

Occupational Health, Safety and Environmental Management Center Attached Graduate School of Engineering

Due to the incorporation of national universities in April 2004, Kyoto University became subject to the Occupational Health and Safety Law just like any other corporation. As a result, the university now has obligations to society regarding accountability and public disclosure of information relating to its occupational environment. It is also required to perform more stringent safety management. To respond to these changes, the Kyoto University Graduate School of Engineering established the Occupational Health, Safety and Environmental Management Center as part of the Graduate School of Engineering at the Katsura Campus in April 2004. Katsura campus was the first Kyoto University campus to establish an occupational environment management center. The reason why the center setup in this way was partly because the Graduate School of Engineering has a large number of laboratories and therefore has a great need for management for environmental impact and occupational safety. It was also because Katsura campus had been actively preparing the base for environmental management as preparation for acquiring ISO14001 ever since the stage of core planning.

The day-to-day activities of the center involve routine inspections within the university and measurement of the work environment. Staff members go around each building and check that the health and safety standards are being obeyed and provide guidance on how to make any required improvements. Another main role of the center is to improve the awareness of the occupational environment inside the university by promoting various campaigns and safety and health education for all member of the Graduate School of Engineering. "When we first started, there were issues that needed addressing in every building: some people were leaving things in front of emergency exits and the storage of containers holding chemicals was unsuitable however, there are hardly any situations where we have to provide such basic guidance," noted Mr. Nakagawa (Industrial Hygiene Supervisor), a staff member of the center. When Mr. Nakagawa does his rounds with inspection equipment in hand, he is warmly welcomed at all laboratories. "Maintaining safety is an extremely impor-

tant issue and frankly, safety and health activities not only produce high quality academic research environment, but also maintain researcher's health and improve the academic research environment. In these cases there is much maneuvering over issues that are not clear cut and, being a researcher myself, I really understand how difficult decisions can be." Mr. Nakagawa, like all the other staff members of the center has managed to build amicable relations with each laboratory, while at the same time decisively and competently adhering to the inspection regime. An important point of this work is to understand the standpoint and sentiments of the other party.

The head of the center, Prof. Oshima, explained why the center is training managers for all departments. "We are actively promoting a revolutionary change in attitudes towards the occupational environment throughout all of Kyoto University. This is an important responsibility of the center." The running costs required for health and safety strategies can be enormous and sometimes such expense hinder the overall research activities. "It is important that we devise strategies for occupational safety that are beneficial to the research activities and so it is important to be thinking at the level of the entire university," said Prof. Oshima. The new standards for an ideal and safe research and educational environment that we are beaming out to everyone and which we call the Katsura Standards is the freshest breezes of change from the Katsura campus.



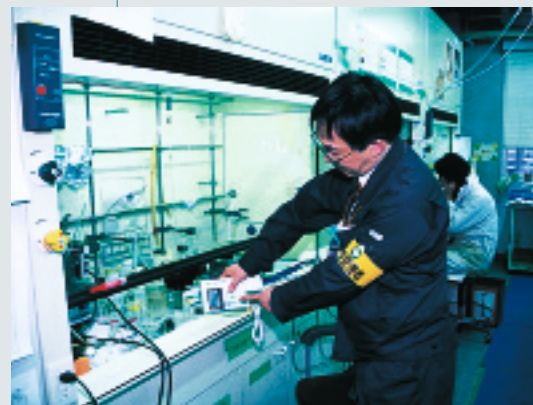
Inspection of emergency shower, a mandatory facility for each laboratory. It is located directly next to the emergency exit.



Koichiro Oshima

- Born in 1947.
- D.Eng., Kyoto University
- Specialized Research Field: Organic Reaction Chemistry
- Professor, Graduate School of Engineering, Kyoto University
- Director, Occupational Health, Safety and Environmental Management Center, Kyoto University

"We would like to establish Katsura Standards for the occupational environment that we can promote to all the campuses of Kyoto University. Unfortunately attitudes and approaches towards the occupational environment differ across departments and campuses. Our objective of changing attitudes and awareness all across Kyoto University must be achieved gradually by first concentrating on providing step-by-step education on occupational health and safety."



Checking enclosing hood at laboratory. Measurement control velocity of air flow.



Promoting National Occupational Health Week to the university. The LED display on Katsura Monument was an attempt to raise awareness of occupational health on campus.

The Fifth Kyoto University International Symposium: "International Symposium on Regulation of Cell Fate and Cell Function"

The Kyoto University International Symposium has been held since 2000 at overseas venues for getting the word out about academic research at Kyoto University.

This symposium was designed to be a symposium of biological science related fields that would be held in Asia. It was held over three days at the Biopolis in Singapore on January 27-29, 2005 under the title of "International Symposium on Regulation of Cell Fate and Cell Function". Participants from Kyoto University included the 21st Century COE Program, the Graduate School of Biostudies, which takes part in COE Formation in Frontier Life Sciences by Unifying Interactions, and the Institute for Virus Research. The symposium was held in collaboration with the National University of Singapore (NUS), which is leading the Singapore Government's push to become a respected player in the field of bioresearch.

At the symposium, there were 28 lectures, 12 of which were held by lecturers from Kyoto University and 48 poster presentations, 22 of which were presented by postgraduate students from Kyoto University. There were many content-rich research presentations and much lively discussion. Initially 395 people registered for the

symposium by Internet and 367 of those actually attended (42 from Kyoto University and 325 from Singapore). Former head of the Institute for Virus Research, Dr. Yoshiaki Ito has established a laboratory in Singapore and has been actively conducting research. His contribution to the symposium helped make it a success.

The symposium was a success on many fronts. Not only could the high level of bioresearch being achieved at Kyoto University be showcased, it gave researchers involved in the developing bioresearch in Singapore opportunity to exchange ideas and postgraduate students to meet with new people. It also ensured that research exchange would continue to thrive in the future.

The dedication that the Singapore Government has towards bioresearch was clearly apparent at the Symposium and it had a strong impact on the participants from Kyoto University. The ceremony attracted many important faces such as Dr. Oike, President of Kyoto University, Dr. Shih, President of NUS, Dr. Yeo, Chairman of Singapore's Agency for Science, Technology and Research and Mr. Kojima, Ambassador of Japan to Singapore. The Singapore side was also keen to put out the message that currently, Singapore is lagging behind Kyoto University but is committed to catching up

and taking the lead. Biopolis, the venue itself also made tremendous impact, which is the new bioresearch base that consists of seven high-rise buildings.

We will finish this report with a comment made by a postgraduate student from Kyoto University who participated in the symposium. This comment not only illustrates the successfulness of the symposium, but also shows how important the symposium was to future research. "The symposium was a valuable experience for me in so many ways. I had the opportunity to listen to our lecturers on topics not limited to science, I gained first hand experience of the charged atmosphere that exists in Singapore and it was a wonderful opportunity to make friends with people who are in the same field of study."

We would like to thank everyone involved in the symposium.



Scene from the symposium venue

The Ninth Kyoto University Future Forum : Voice from the Frontline of International Society

Mr. Teiichi Sato, Ambassador, Permanent Delegation of Japan to UNESCO

The Ninth Kyoto University Future Forum was held on December 22, 2004 in the Centennial Hall. The theme was "Future of International Organizations: Putting UNESCO Activities in the Spotlight". Mr. Teiichi Sato, Ambassador, Permanent Delegation of Japan to UNESCO and Alumnus of Kyoto University Faculty of Law was invited as guest speaker. The Kyoto University Future Forum is a public event, which started in April 2004, where Kyoto University alumni of various vocational backgrounds are invited to give a speech. It provides the opportunity for people of the community, Kyoto University teaching staff and students to exchange views. Since Kyoto is the birthplace for UNESCO citizen activities in Japan and many cherished places of historic interest are listed together as World Heritage under "Historic Monuments of Ancient Kyoto", it was only natural for this forum to attract a broad spectrum of interest.

"This is an age of tumultuous change. As international problems multiply and accelerate, we are racing to seek effective

solutions within shorter timeframes. This is leading to a greater number of players in international society." These words from Mr. Sato, were relayed with a sense of tension of one who is working at the frontline of the international society. "By moving outside the framework of nationhood, international organizations with a single character are forming one after the other. It is important to coordinate these diversified international organizations and seek an integrated approach towards an overall plan."

After the speech, there was a lively question and answer session held between the forum participants and Mr. Sato. At Kyoto University, there are many students who are aiming to build a career in an international organization and there was a flurry of questions each brimming with a desire to learn as much as they can about the situation of programs in the field. A third-year law student, who has been working hard on a program to send disused computers from Japan to Cambodia for use in IT education expressed his following concern. "When you consider the difference in the environment of advanced nations and developing nations, I

wonder whether our activities are suitably targeting the actual needs of those countries." To this new player, Mr. Sato offered the following encouragement. "The assistance to developing nations is in various forms such as through international organizations and citizen activities. However, all these efforts combined cannot be considered as adequate. Therefore countries warmly welcome activities that assist with an aspect that the country cannot cover itself." Mr. Sato ended the forum by emphasizing again that UNESCO's role for the current international society, which encompasses a diversified range of players, is to think up frameworks that allow players to define what kind of role to fulfill and where such a role would fit in respect to overall activities.

Venue for the Kyoto University Future Forum



Mr. Sato talks enthusiastically.

Features 3 Research Institute for Sustainable Humanosphere (RISH) Establishing New Connections Between Science and Human Society

—Creation of Novel Science for Humanosphere by Taking a Holistic Approach



Illustrated image of Sustainable Humanosphere

Can the human race continue to survive on Earth? - Ever since the problems associated with the global environment were placed under the spotlight at the end of the 20th Century, this question has continued to be the greatest concern of mankind. Thus far however, scientific research has yet to prescribe a way to make it possible to reply yes to this question. The founding of The Research Institute for Sustainable Humanosphere (RISH) was motivated by dissatisfaction with the traditional approach of scientific research that is based on the observation of phenomenon.

In April, 2004, the Kyoto University Wood Research Institute and the Kyoto University Radio Science Center for Space and Atmosphere merged to form RISH. The idea behind the merger of two apparently unrelated fields of research was a scheme that would lead to a paradigm shift in the interrelationship between human society and science. The keywords that elucidate this idea are holistic and sustainable. We asked Dr. Hiroshi Matsumoto, Director of RISH about the ambitious plans for the new research center.

The Idea of a Sustainable Humanosphere

What is a humanosphere?

The term humanosphere is a word that we have created. It means the area and space that humans require to exist. The humanosphere includes the ground human habitat, the arborsphere, the atmosphere and space. I am often asked how the humanosphere is different to the global environment. As part of the concept of the global environment, the activities for human subsistence are just one variable

and the priority is not on these activities. In contrast to this, the concept of humanosphere clearly places priority on the activities for human subsistence. This is the reason behind establishing RISH. We wanted to establish humanospheric science, which is what we call science that focuses on the formation of a global environment that enables the sustainable development of human societies. Before establishing RISH, we held as many as 33 separate meetings to gain consent from all members. As part of the process of formulating concepts, we actively sought opinions from young researchers. It was very important to reach agreement in this way as opinions influence the motivation behind the research.

How did RISH get established?

In April 2004, RISH was established through the restructuring and merging of two Kyoto University institutions, the Wood Research Institute and the Radio Science Center for Space and Atmosphere. I bet you are wondering how can two research centers with fields of research so far apart from each other become one? It is a question that many people have asked. The necessity behind it is clearly apparent however if we keep in mind the concept of humanosphere we discussed earlier. In both of the research fields, the purpose of research is how to effectively utilize the resources that constitute our finite planet. Thus in this sense, the two shared very similar directions. Furthermore, it was thought that by merging as one, it would be possible to reappraise existing fields of research from a more holistic approach. This was the trigger for merging the research centers. If for example you were looking at things from the perspective of recycling and utilizing solar energy, it would be much clearer how closely connected the research of the two research centers is. At RISH, rather than staying within the boundaries of an existing field of research, our scientific research focuses on a holistic approach.

What kind of regime does research follow at RISH?

The regime for research at RISH is to ensure that research carried out for the research center missions takes a holistic

approach. Currently we are working with four missions to solve present and future problems concerning the humanosphere and we review mission projects every six to twelve years. Our organization is divided into the Core Research Division, Center for Exploratory Research on Humanosphere and the Department for Collaborative Research Programs. The departments we consider most important are the Center for Exploratory Research on Humanosphere and the Department for Collaborative Research. For each research theme at the Center for Exploratory Research on Humanosphere, researchers gather from their respective laboratories can carry out research on equal footings to one another regardless of the post each member holds. We have already begun research in new fields such as Dendroclimatology in Tropical Regions, Timber Utilization in Space and Bio-Material Production Systems. It is this pioneering of new research that defines RISH. A particularly pleasing aspect is the rapid response of our young researchers. The Department for Collaborative Research Programs assists in the expansion of collaborative research. For the benefit of international collaborative research, we have made available our facilities, equipment and databases to overseas universities and research centers. Another advantage of RISH being formed from two research centers was that it broadened the number of contacts throughout the world.

Humanospheric Science for Diagnosis and Remediation of the Planet

Please talk more about humanospheric science which RISH espouses.

Basically, it is about securement of sustainability. We as the human race must realize the finite nature of this planet that we call Earth. We need to face up to the fact that human subsistence and development of human society is confined to the capacity of Earth. If we calculate the maximum number of people that can be sustained by Earth based on current energy consumption rates, it works out to be about 10 billion people. It means that if the current pace is maintained, we will reach this limit midway through the 21st Century. Bearing this in mind, when faced

Anechoic Radio Wave Chamber at Microwave Energy Transmission Laboratory



Solar Power Station/Satellite Laboratory.

with the question of whether human subsistence is sustainable or not, the answer at this point in time is clearly "No". So what do we do about it? One approach is to lower living standards on a broad scale and suppress energy consumption levels. However that approach is definitely not the ideal subsistence environment. Humanospheric Science tackles this very issue. The objective of the research is to find ways to maintain a certain level of living standards while at the same time making human subsistence and growth of human societies sustainable.

■ What kinds of things are you currently researching?

The precept of humanospheric science is based on three steps of research. The first step is analysis, which involves the impartial observation of the planet to gain insight on the current circumstances. This is also the approach taken by the traditional natural sciences ever since Descartes. The second step after this is diagnosis of the planet, which involves probing for relationships and correlations between the scientific knowledge acquired from the results of analysis. This step has also traditionally been performed as part of the research of various academic fields. The final step is remediation of the planet, which involves taking a holistic approach to develop the scientific technology required to achieve a sustainable humanosphere based on relationships and correlations identified in the previous step. This step has been difficult to carry out within the framework of existing academic research. It is the remediation step that defines what humanospheric science is about. We currently have a number of research projects running. In our research into creating plastic from trees, we are creating plastics by compressing only cellulose. We are creating materials with strengths equivalent to steel, but at one-fifth the weight. The scope of use of such materials is enormous including application in space. We are also researching solar power generation in space where we are developing a system that can transmit generated electricity to earth via microwave. In the field of Organic EL displays, we have developed a display that can flex like a sheet of paper. Half of our focus is working to develop alternative energies

that can be developed using scientific technology to promote the development and utilization of bio-based resource cycling systems. The other half of our focus is expanding the space that can be used to sustain humans, including space. In other words, humanospheric science is the science for human survival.

Research that can only be at Kyoto University

■ Can you elaborate on the holistic approach you have mentioned?

What we mean by holistic approach is having the consciousness and awareness required to comprehend sustainability. This comprehension must include appreciation of spatial, temporal and physical factors. It also requires an awareness of Earth as one part of continual space. Rather than reaping the benefits in the short-term, it is consideration of the impact over a span of one thousand years. It is working for the survival of human kind while not being confined to specific methodology, materials or field of study. If a science can satisfy all these conditions, then it can be called science for the sustainability. In this respect, Kyoto University offers the conditions necessary to further the growth of science for the sustainability. Because it has researchers from a vast array of fields, it already has the research base for science that is holistic in both a spatial and physical sense. All that is required to reach the level of submitting a remedial approach is to achieve an aggregation of scientific intelligence. The establishment of RISH and its activities aim to serve as the detonating agent for this to occur. Lastly, Kyoto is also known as the 1000 year-old city, and so there is a tradition of seeing things in terms of 1000 years. Also, since Kyoto is the home of the Kyoto Protocol, I personally feel Kyoto University has a responsibility to take a holistic approach and research the scientific technology necessary to achieve a sustainable society.



Prof. Hiroshi Matsumoto, Director of RISH

Prof. Matsumoto's belief that "academic research is for the benefit of humanity" is perhaps bolstered from living in an extended family household of four generations, which is quite unusual in Japan today. In such an environment he is constantly reminded of the sense of urgency for humans to achieve sustainable growth when he wonders how Earth and humanity will be faring when the grandchildren are elderly. On the wall of the Matsumoto Lab is a collage of photos of visitors to the lab. By the way Prof. Matsumoto puts much emphasis on the importance of the links people form with each other, one gets a sense there is a strong love of humanity behind his serious ambitions for RISH, which he talks about in such a stirring and humorous way.



MU radar, located at Shigaraki, Japan, is known as the most capable atmospheric radar in the world.



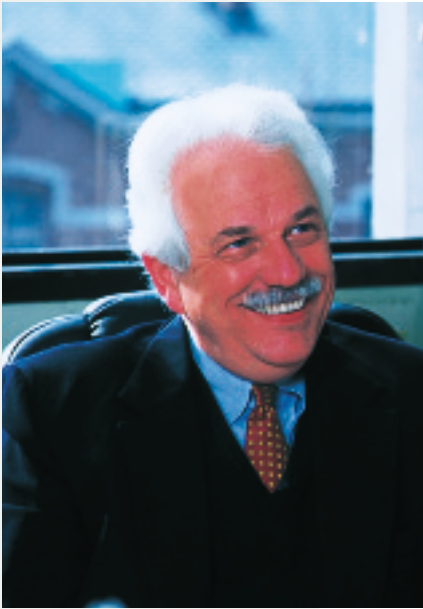
Wood specimen in the xylarium which is world renowned for its vast collection.



Tree ring of a Yakusugi cedar measuring 180cm in diameter on display in the xylarium. The year of felling is estimated to be 1935 based on dendrochronological methods. The tree rings can be trace back to 1192 A.D.

DISASTERS AND INFRASTRUCTURE

Charles Scawthorn



Charles Scawthorn

- Born in New York, U.S., in 1944.
- Specialized Research Field: Lifeline Engineering, Earthquake Disaster Prevention Systems
- Graduate of The Cooper Union (New York) and Lehigh University
- D. Eng., Kyoto University
- Professor, Graduate School of Engineering, Kyoto University
- URL <http://quake2.kuciv.kyoto-u.ac.jp/>

Prof. Scawthorn has extensive experience working in disaster-prone regions such as California, Japan, Mexico and Turkey, as a structural engineer and risk analyst. It is therefore by no means coincidental that he acquired his doctorate at Kyoto University in Japan, a country that regularly suffers natural disasters, and he currently pursues research and teaching here. Directly after the Second World War, Kyoto University established joint research involving various academic fields to achieve rapid reductions in the amount of damage that disasters cause, and therefore it has accumulated an abundance of data related to natural disasters. The decisive factor that motivated Dr. Scawthorn to return to Japan occurred by chance in 1995 when the Hanshin Earthquake struck. Dr. Scawthorn happened to be in Osaka at the time of the earthquake, close to where the disaster struck. Consequently his intended stay of one week extended into two years. Now Dr. Scawthorn has returned to his old school. He smiled as he confided that he enjoys a stimulating research environment while working in his laboratory, which holds a traditional Japanese charm.



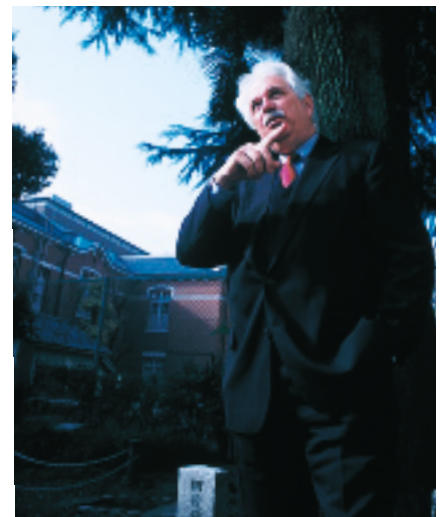
In recent months Japan has endured a number of typhoons and a powerful earthquake in Niigata. These events, and disasters in other countries such as flooding in the Philippines, the earthquake in Bam (Iran), are powerful reminders that Nature, which is the source of our existence and well being, is also a force to which humankind must constantly make adjustments. Society's ability to build high-rise buildings, highways, high-speed railroads and other infrastructure is usually thought of as a very recent development. While this development has brought great wealth and prosperity, it has also brought great risks. To understand why this is so, it is useful to compare the relative development of our technology with that of our knowledge of natural disasters.

In a sense, humankind has been building roads, water supply systems and other infrastructure for thousands of years. Similarly, humankind has experienced and suffered from tropical cyclones, floods, volcanic eruptions, earthquakes and other natural disasters, for as long as we have existed. Yet, in a sense, we haven't kept up. That is, our infrastructure, most of which has all been built during about the last 100 years, was built well before we understood disasters - most railroads in the world were built by about 1950 (even the Shinkansen structures mostly dates from the 1960s and 70s); most highways were built by about 1980; most urban water systems were built by the mid-20th century, and so on. Yet, in contrast, our understanding of earthquakes is much more recent - the theory of plate tectonics, which underpins our understanding of the root cause of earthquakes, only emerged in the 1960s. Liquefaction was only discovered as a physical effect of earthquakes in 1964 (the year the Shinkansen began running between Tokyo and Osaka). While the first strong motion recording was made in 1933, the San Fernando earthquake in 1971 doubled the total number of such recordings in the world, from 100 to 200. In fact, we went to the Moon before we had 100 recordings of strong earthquake ground motion. It is only since the 1980s that we have gathered and been able to analyze a reasonably sized set of strong ground motion data.

Prof. Scawthorn enjoys a stimulating research environment supported by friendly staff and a sunny office.

So, humankind now finds itself in a curious situation, in which most of our 'modern' infrastructure predates our modern knowledge of earthquakes and how they damage buildings and infrastructure. The result is that in most of the world, including Japan, we are surprisingly at risk from natural disasters - much more so than our 'modern' steel and glass skyscrapers, shiny bullet trains and tiny new digital camera-phones would suggest. Much of our built environment is actually 'obsolete', from a seismic and/or other natural disaster perspective.

About 120 years ago, Kyoto built a visionary water supply system that brought abundant fresh water from Lake Biwako at the same time providing a transportation link and generating electricity (in fact, the Keage project was the second hydro-electric generation plant in the world). Today, many researchers at Kyoto University and its Disaster Prevention Research Institute work towards improving our understanding of natural disasters and how to mitigate their impacts. Yet, this work will be for naught, and catastrophes will grow greater and greater, unless major programs are put in place to upgrade the infrastructure built decades before we fully understood the effects of earthquakes and other natural disasters. Getting this message to leaders and society is vitally important.



Courtyard of Memorial Hall of Civil Engineering. Behind Prof. Scawthorn is a Himalayan cedar, which was planted by the late Dr. Sakuro Tanabe as part of a commemoration. As a fellow civil engineer, Prof. Scawthorn has high regard for the feats of Dr. Tanabe, who planned and supervised the construction of the Lake Biwa Aqueduct in the Meiji era. Coincidentally, Dr. Scawthorn currently lives in an apartment building built where the late Dr. Tanabe's residence once stood.

Richard Murdey

A process that looks for answers is more important than sticking to the theme

Richard Murdey studied at Hokkaido University, Japan for a year and a half, and then moved to the University of British Columbia, Canada where he acquired a doctorate. He then took up a postdoctoral position at the University of Linköping, Sweden for two years and after that relocated back to Japan. He is a research chemist who has experience in various different countries and regions. His theme of research has often changed to suit the research environment of his host. Currently he is with the Kyoto University Institute for Chemical Research and is now in his sixth week of his first project involving research into molecular aggregation analysis. Dr. Murdey cannot conceal his pleasure that at Sato Laboratory where he works, he has the freedom to choose his own approach to obtaining answers of a theme, allowing him to develop his own methodology.

You have gained your research experience through working in a variety of countries, what led you to choose Kyoto University?

I decided Kyoto University after meeting Prof. Naoki Sato. After I decided to come to Japan, I was considering four research laboratories including Kyoto University, but after talking with Prof. Sato, I knew that this was the place. I was able to fully embrace his method of research. I have had research experience in both Canada and Europe but this was my first encounter with a researcher whose approach was so close to mine.

Tell us about your current research.

We already know that the way organic molecules pack together, or arrange into groups, changes the way the material conducts electricity. Our laboratory is looking for new molecules, which pack together in an interesting or unusual way. When we find them, we check if there is a strong and direct link between structural and electronic changes. If there is, we investigate these molecules in more detail. Our vision is to utilize the different aggregation structures of organic materials to design useful electronic devices. The aim is to better understand how the molecule-to-molecule interaction affects the way charge moves in the material, in other words, the mechanism by which it conducts electricity. Of course, we also hope to discover new and exciting elec-

tronic components for application in microelectronics.

What kind of research do you envisage in the future?

In Linköping, our research into organic light emitting materials tended to be driven by industrial interest. The primary goal was to improve the performance of electronic devices that would be used in the personal computers, electronic products and mobile phones of the near future. It was very interesting seeing how useful our research was to people's daily lives. However, the downside was that because results were always the priority, restrictions were sometimes placed on what we could do as researchers. Currently, I feel I am engaged in core research. Our laboratory provides the environment and atmosphere to allow us to focus determinedly on our own methodologies. As the experimental results of this core research accumulates, I hope to create new materials and devices that take advantage of molecules in ways never seen before.

I have heard your wife is Japanese and you have a daughter.

My daughter was born in Sweden and is now 18 months. During the week I am busy at the laboratory so I try to spend as much time with my family on weekends as possible. We take walks to a nearby park and take walks in the mountains. On the West Coast of Canada, it is either summer or winter and you don't really sense the subtle changes of spring and autumn. Kyoto, however, clearly exhibits four distinct seasons. The seasons have a certain impact on peoples' behavior and it is a lifestyle I personally enjoy, so I am very happy here.

You seem to have adapted very easily to life in Japan.

Yes, I really feel at ease when I am in Japan. When I returned to Japan after being away for about seven years, in addition to feeling a strong sense of nostalgia, I also felt that I had returned to a place where I should be. In Kyoto especially, wherever I am, it is never tedious. Be it gazing upon the roadside statues of Jizo, a guardian deity of children, stopping at ancient buildings brimming with a sense of history, or just everything I encounter in my



Richard Murdey

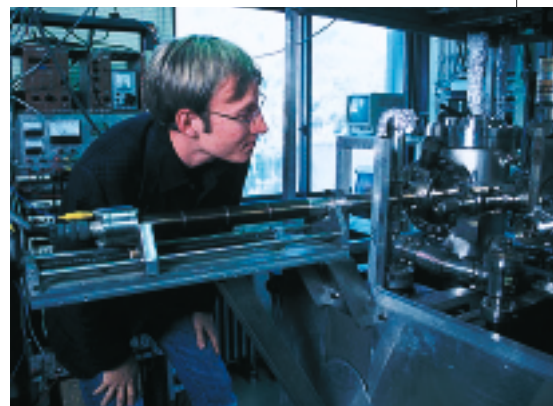
- Born in England, in 1972.
- Ph. D., the University of British Columbia
- Guest Research Associate, Institute for Chemical Research, Kyoto University
- URL <http://www.kuicr.kyoto-u.ac.jp/labos/is2/scope.html>

daily life, I feel a real sense of enjoyment

I would be interested to hear about your plans for future post-doctoral work in the next two years.

My current feelings are that I would like stay in Japan as a researcher long into the future. However, I do realize that when thinking long-term, it will not be easy as a foreigner to secure employment. Language is a definite hurdle. Even if I am able to converse in Japanese, I can see many difficulties in relation to work if I am unable to write it. Despite this, I don't think it is impossible and I am already hard at work learning my kanji, Chinese characters.

(Date reported: November 24, 2004)



In the laboratory. Dr Murdey and his colleagues handle the equipment with care.

Ryosuke Nagano



Ryosuke Nagano

- Director, NLK Project
- Presently in the third year of a doctoral program at the Graduate School of Engineering, Kyoto University

new letters from Kyoto - Unleashing the Potential of Bonds Between People

The NLK Nishiyama Festival 2004 was held at the Kyoto University Katsura Campus on November 27 and 28, 2004, with the theme "science x art @ Kyoto". This was the first student-organized event that included the entire Katsura Campus since the Katsura Campus opened in October 2003. Nishiyama is the name given to the hillside on the west side of Kyoto. This area is home to a number of cutting-edge scientific research institutions, including the Kyoto University Katsura Campus. The adjoining region is home to research centers and colleges specializing in the humanities, such as the Kyoto City University of the Arts, and the International Research Center for Japanese Studies.

One of the objectives of this event was to give a voice to the rich cultural expression that this unique environment can offer. The organizers of the event were Kyodai Gomi-Bu (Kyoto University Garbage Department), Katsura Eco Model Project. These student groups regularly voice suggestions on issues concerning management of the environment inside Kyoto University campuses. One of the organizers, Mr. Ryosuke Nagano, currently doing a doctoral course in engineering, explained to us how recent student activities such as this event take a bottom-up approach.

"To me, this is the most relaxing place of all the Katsura Campus." Commented Mr. Nagano at the open ground in front of the front entrance to A Cluster, which was where he nominated to have the interview. Mr. Nagano was involved in the planning of the cafeteria and bakery shop surrounding the open ground, as part of the Katsura Eco Model Project set up in January 2003. "Not all of my design was adopted in the final spaces, but I injected considerable effort in getting the design concept off the ground. For that reason, I have attachment to this place." Mr. Nagano said that his driving force at that time was the willingness to be proactively involved in the birth process of a new campus from the standpoint of a student who is going to use the facilities. As an aspiring architect working at the location of his first work experience, what was at the forefront of his mind was a desire to provide the place for people to meet people. He remains active on Katsura Campus and is currently working with the university and related businesses as part of a campaign to look after the environment by reducing the littering of containers and packaging through projects such as

the "My Cup Trial". Mr. Nagano and his colleagues have been putting forward practical suggestions by creating investigation reports and road maps for goal achievement. This approach originated from the activities of the Kyodai Gomi-Bu (Kyoto University Garbage Department) which was established to build environmental management systems at Yoshida Campus in 1999. As these activities became more popular, they created opportunities for people to meet people and this is how the "NLK Nishiyama Festival 2004" was conceived.

NLK (New Letters from Kyoto) is a project that gives both Kyoto culture and the untapped talents of the people who gather here an outlet of expression that can be heard by the world through the creation of new letters. The Nishiyama Festival was blessed with clear weather and each event, exhibition and food service was bustling with people. Mr. Nagano was in charge of the production of a video letter that was screened during the festival finale, and had continued to perform the editing work on it right up until the time of screening. He said he was very encouraged by the response he received from the people who appeared in the video.

"In all honesty, I never thought that our ideas would ever be embraced like this. It is a great feeling when you successfully convey your own ideas. It's a tremendous boost to my confidence, which is particularly important to me as I am about to begin my career as an architect where I can present my own concepts and ideas to the world."

Mr. Nagano will soon have to pass the baton to his junior colleagues for them to continue with Nishiyama Festival. However he acknowledges that it is better for the new wave of people to find their own style of doing things that suits their circumstances. This acknowledgement is no doubt based on his belief that people will understand you if your convictions are strong enough.

It has been two years since Mr. Nagano started getting involved in the Katsura Campus project. He says he would like to work as an architect and increase the distribution of the NLK. It is his dream to provide an arena where people of differing fields of study can exchange ideas.

As part of the My Cup Trial, President Oike was invited to the planning and discussion meeting for the NLK Nishiyama Festival.



"The comic class with Dr. High Moon and the Robot Chroino" was a very popular event for children. (Nishiyama Festival)



The open ground in the front entrance to A Cluster transformed into the venue for international stalls full of international cuisines. (Nishiyama Festival)



Kyoto University Study Abroad Fair 2004

"There is a strong interest amongst Kyoto University students to study abroad. If this university provides students with information that caters to this interest, many students will happily participate, many of those will end up abroad, which contributes to the internationalization of Kyoto University students." The belief and enthusiasm as expressed in this statement by a young staff of Foreign Student Division made possible this large event filled with as many as 900 participants.

The Kyoto University Study Abroad Fair 2004 was held on November 2, 2004 and took up roughly the entire floor space of the Clock Tower Centennial Hall. Its primary theme was "I'm glad I went!" which was represented by a groovy yellow poster. The fair presented a variety of options, covering short-term study for language learning, student exchange program, overseas internship, and university postgraduate program. Following a

general orientation aimed at everyone, theme-based seminars were held. These consisted of presentations by international organizations and organizations of various countries, with a presence in Japan concerning options for study abroad. Student consultation booths were also set up to allow participants to ask questions directly to exhibiting organizations. The participating students were able to search around for opportunities that grabbed their personal interest.

"Although in this age, it is easy to look up on the Internet or read in a publication about studying abroad, it is hearing the first hand experience of senior students who have actually studied abroad and listening to the advice of specialist counselors which lead to a strong motivation to go overseas" said Kenichi Shiraishi of the Foreign Students Division, who was responsible for the conception and planning of this fair. He was surprised by the better than expected



Poster for the Study Abroad Fair 2004

turnout and it reinforced his belief that there was an underlying desire in students of Kyoto University to study abroad.

The holding of this fair may have set the ball rolling for a Kyoto University student to decide to come to your country to study. If they do, please give them a warm welcome.



Booths from various countries offering advice for studying abroad



Students eagerly seek advice from specialist staff.



The venue for general orientation was filled to capacity.

Visitors from Abroad

Kyoto University receives official visits year-round, whether from universities with which the university has academic exchange memorandums, foreign research laboratories, or through the various embassies in Japan. Visitors spoke with the President, the Vice-President, and professors, engaging mainly in lively discussions regarding promoting academic exchanges between their own organizations and Kyoto University. The list right covers the most notable visitors.



Prof. Coleman, Vice Provost for Research from the University of California holding talks with President Oike.

Dr. Lawrence Loh, Secretary General, Association of Pacific Rim Universities visits Kyoto University's Historical Exhibition Room.



Visitor List

- Dr. Chang Horng-jinh / President, Tamkang University (Taiwan) / April 2004
- H.E. Mr. Eli-Eliahu Cohen / Ambassador, Embassy of Israel / April 2004
- Prof. Richard Gonzalez / Chair of Department of Psychology, the University of Michigan (U.S.A.) / April 2004
- Prof. Ouyang Kang / Assistant President, Huazhong University of Science & Technology (China, P.R.) / May 2004
- Mr. Philip Yeo / Chairman, Agency for Science, Technology and Research (Singapore) / May 2004
- Prof. Lawrence B. Coleman / Vice Provost for Research, the University of California (U.S.A.) / June 2004
- Prof. Kim Dae-Sik / Dean of the Graduate School, Chung-Ang University (Korea, R) / July 2004
- Dr. Lawrence Loh / Associate President, National University of Singapore, APRU Secretary General (Singapore) / August 2004
- Prof. Shi Jianjun / Executive Vice-President, Nanjing University (China, P.R.) / October 2004
- Prof. Loyiso Nongxa / Vice-Chancellor, the University of Witwatersrand (South Africa) / November 2004
- H.E. Mr. Miguel Ruiz-Cabanas Izquierdo / Ambassador, Embassy of Mexico / November 2004
- Prof. Ekhard Salje / President of Clare Hall College, the University of Cambridge (U.K.) / November 2004
- Mr. François d'Aubert / Vice-minister for Research (France) / November 2004
- Prof. Cheng Jinpei / Vice Minister, Ministry of Science and Technology (China, P.R.) / November 2004
- Prof. Ricardo De Ungria / Chancellor, the University of Philippine in Mindanao (Philippines) / November 2004
- Prof. Jung-Woong Ra / President, Gwangju Institute of Science and Technology (Korea, R) / December 2004
- Mr. Qiu Guohong / Consul General, Consulate-General of the People's Republic of China in Osaka / December 2004
- H.E. Mr. Mario Bova / Ambassador, Embassy of Italy / December 2004



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P R O M E N A D E 琵琶湖 疏水

京都逍遙

Lake Biwa Aqueduct Sharing an interwoven bond of birth and rebirth

The stunning water surface of the Lake Biwa Aqueduct is one of the most charming aspect of the city of Kyoto in eastern part. The Lake Biwa Aqueduct and Kyoto University share strong historical connections.

The first historical connection dates back to the founding of Kyoto University about 100 years ago. Around that time there was a mood of despondency in Kyoto as the Meiji Restoration removed the capital, which had been in Kyoto for over 1000 years, to Tokyo. This led to a desire for Kyoto to be given a new identity as a city of education and culture and there was an active focus on bringing greater prosperity to the region. Part of this push was the initiative to establish Kyoto Imperial University, and another was the commencement of construction of a canal, which aimed to bring water from Lake Biwa, which is adjacent to the Higashiyama mountain range and revive the industry and economy of Kyoto. The person behind the design and construction of this remarkable feat was a 21 year-old freshly graduated engineer Sakuro Tanabe, who became a professor at Kyoto Imperial University. The project was carried out in 1885, and canals were completed in 1912. The canal played an important role in the rebirth of the modern Kyoto. "My grandfather loved large scale civil engineering projects. Even after he became professor at the Kyoto Imperial University, he gladly traveled anywhere in Japan whenever he was invited to assist in large scale civil engineering projects." said grandson Mr. Yoichi Tanabe, who is a graduate of the Kyoto University and has become a civil engineer like his grandfather.

The second bond Kyoto University has with the Lake Biwa Aqueduct occurred after the Second World War. In 1949, Kyoto Imperial University restarted as Kyoto University and the nuclear physics laboratory, which had been closed by the Allied Forces, was also reopened at roughly the same time. In 1952, Kyoto University proposed to rebuild a cyclotron and the place chosen for its construction was Keage hydroelectric power plant, which used the water of the Lake Biwa Aqueduct. From 1955 until 1968, the heritage of canal construction assisted the growth of Kyoto University's nuclear physics research.

Kyoto University, Lake Biwa Aqueduct and the city of Kyoto, share in common both birth and rebirth. The various bonds that are formed between these three parties will surely continue to form an interwoven history.



Junction point of the First Canal and the Second Canal at the Okazaki Region. The canal water flows west through the city of Kyoto from this point.



Due to a difference of elevation, boats were moved by canal incline near Keage. The restored boats, rail cart and tracks give a historic flavor to the area.



The former Keage Power Plant, which is the first hydroelectric power plant in Japan. (It is currently closed to the public.)



Yoichi Tanabe standing in front of the storehouse which his grandfather, Dr. Sakuro Tanabe used as a study.